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# =====
#① Import Libraries
# =====
import pandas as pd
import plotly.express as px

# =====
#② Sample E-Commerce Data
# =====
data = {
    "OrderID": [1001,1002,1003,1004,1005,1006,1007,1008,1009,1010,1011,1012,1013,1014,1015],
    "ProductName": ["Wireless Mouse","LED Monitor","Cotton T-Shirt","Running Shoes","Smartphone",
                    "Jeans","Headphones","Sports Socks","Backpack","Leather Belt",
                    "Sandals","Laptop","Water Bottle","Hoodie","Tablet"],
    "Category": ["Electronics","Electronics","Clothing","Footwear","Electronics",
                 "Clothing","Electronics","Clothing","Accessories","Accessories",
                 "Footwear","Electronics","Accessories","Clothing","Electronics"],
    "Quantity": [5,2,10,3,1,4,6,8,3,2,5,1,10,2,1],
    "UnitPrice": [20,150,15,60,500,40,30,5,35,25,30,1000,10,50,300],
    "OrderDate": pd.to_datetime(["2025-01-05","2025-01-07","2025-01-08","2025-01-09","2025-01-10",
                                "2025-01-12","2025-01-15","2025-01-16","2025-01-18","2025-01-20",
                                "2025-01-22","2025-01-25","2025-01-26","2025-01-28","2025-01-30"]),
}
df = pd.DataFrame(data)
df["Revenue"] = df["Quantity"] * df["UnitPrice"]

# =====
#③ KPI Calculations
# =====
total_revenue = df["Revenue"].sum()
total_quantity = df["Quantity"].sum()

revenue_by_category = df.groupby("Category")["Revenue"].sum().reset_index()
top_products =
df.groupby("ProductName")["Revenue"].sum().sort_values(ascending=False).head(10).reset_index()
monthly_revenue =
df.groupby(df["OrderDate"].dt.to_period("M"))["Revenue"].sum().reset_index()
monthly_revenue["OrderDate"] = monthly_revenue["OrderDate"].dt.to_timestamp()

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# =====
#④ Print Dashboard Header & KPIs
# =====
print("📊 E-COMMERCE SALES DASHBOARD 📊") # Only once at top
print(f"Total Revenue: ${total_revenue}")
print(f"Total Quantity Sold: {total_quantity}")

# =====
#⑤ Visualizations
# =====

# Top 10 Products (with title)
fig1 = px.bar(top_products, x="ProductName", y="Revenue", title="E-Commerce Dashboard")
fig1.show()

# Revenue by Category (no title)
fig2 = px.pie(revenue_by_category, names="Category", values="Revenue")
fig2.update_layout(title_text="") # Remove title
fig2.show()

# Monthly Revenue Trend (no title)
fig3 = px.line(monthly_revenue, x="OrderDate", y="Revenue", markers=True)
fig3.update_layout(title_text="") # Remove title
fig3.show()
```